

# SEVELAMER HYDROCHLORIDE- sevelamer hydrochloride tablet, film coated NorthStar RxLLC

---

## HIGHLIGHTS OF PRESCRIBING INFORMATION

These highlights do not include all the information needed to use SEVELAMER HYDROCHLORIDE TABLETS safely and effectively. See full prescribing information for SEVELAMER HYDROCHLORIDE TABLETS.

SEVELAMER HYDROCHLORIDE tablets, for oral use

Initial U.S. Approval: 2000

---

## RECENT MAJOR CHANGES

Warnings and Precautions (5.1)

04/2020

---

## INDICATIONS AND USAGE

- Sevelamer hydrochloride tablets are a phosphate binder indicated for the control of serum phosphorus in patients with chronic kidney disease on dialysis. (1)

---

## DOSAGE AND ADMINISTRATION

- Starting dose is one or two 800 mg tablets three times per day with meals. (2)
- Adjust by one tablet per meal in two-week intervals as needed to obtain serum phosphorus target (3.5 to 5.5 mg/dL). (2)

---

## DOSAGE FORMS AND STRENGTHS

- Tablets: 800 mg (3)

---

## CONTRAINDICATIONS

- Bowel obstruction. (4)
- Known hypersensitivity to sevelamer hydrochloride or to any of the excipients. (4)

---

## WARNINGS AND PRECAUTIONS

- Serious cases of dysphagia, bowel obstruction, bleeding gastrointestinal ulcers, colitis, ulceration, necrosis, and perforation have been associated with sevelamer use, some requiring hospitalization and surgery. (5.1)

---

## ADVERSE REACTIONS

- The most common reasons for discontinuing treatment were gastrointestinal adverse reactions. (6.1)
- In a parallel design study of 12 weeks duration, treatment-emergent adverse reactions to sevelamer hydrochloride tablets in peritoneal dialysis patients included dyspepsia (12%), peritonitis (8%), diarrhea (5%), nausea (5%), constipation (4%), pruritus (4%), abdominal distension (3%), vomiting (3%), fatigue (3%), anorexia (3%), and arthralgia (3%). (6.1)
- Cases of fecal impaction and, less commonly, ileus, bowel obstruction, and bowel perforation have been reported. (6.2)

**To report SUSPECTED ADVERSE REACTIONS, contact Northstar Rx LLC at 1800-206-7821 or FDA at 1-800-FDA-1088 or [www.fda.gov/medwatch](http://www.fda.gov/medwatch).**

---

## DRUG INTERACTIONS

- When clinically significant drug interactions are expected, separate the timing of administration and monitor clinical responses or blood levels of the concomitant medication. (7)
- Sevelamer did not alter the pharmacokinetics of digoxin, enalapril, iron, metoprolol, and warfarin. (7)
- Sevelamer binds ciprofloxacin and mycophenolate mofetil; dose these drugs separately from sevelamer hydrochloride. (7)

**See 17 for PATIENT COUNSELING INFORMATION.**

**Revised: 5/2023**

---

## **FULL PRESCRIBING INFORMATION: CONTENTS\***

### **1. INDICATIONS AND USAGE**

### **2. DOSAGE AND ADMINISTRATION**

### **3. DOSAGE FORMS AND STRENGTHS**

### **4. CONTRAINDICATIONS**

### **5. WARNINGS AND PRECAUTIONS**

5.1 Gastrointestinal Adverse Events

5.2 Monitor Serum Chemistries

5.3 Monitor for Reduced Vitamins D, E, K (clotting factors) and Folic Acid Levels

### **6. ADVERSE REACTIONS**

6.1 Clinical Trials Experience

6.2 Postmarketing Experience

### **7. DRUG INTERACTIONS**

### **8. USE IN SPECIFIC POPULATIONS**

8.1 Pregnancy

8.2 Lactation

8.4 Pediatric Use

8.5 Geriatric Use

### **10. OVERDOSAGE**

### **11. DESCRIPTION**

### **12. CLINICAL PHARMACOLOGY**

12.1 Mechanism of Action

12.2 Pharmacodynamics

12.3 Pharmacokinetics

### **13. NONCLINICAL TOXICOLOGY**

13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility

### **14. CLINICAL STUDIES**

14.1 Active-Control, Cross-Over Study in Hemodialysis Patients

14.2 Active-Control, Parallel Study in Hemodialysis Patients

14.3 Active-Control, Parallel Study in Peritoneal Dialysis Patients

### **16. HOW SUPPLIED/STORAGE AND HANDLING**

### **17 PATIENT COUNSELING INFORMATION**

\* Sections or subsections omitted from the full prescribing information are not listed.

---

## **FULL PRESCRIBING INFORMATION**

### **1. INDICATIONS AND USAGE**

Sevelamer hydrochloride tablets are indicated for the control of serum phosphorus in patients with chronic kidney disease (CKD) on dialysis. The safety and efficacy of sevelamer hydrochloride tablets in CKD patients who are not on dialysis have not been studied.

## 2. DOSAGE AND ADMINISTRATION

*Patients Not Taking a Phosphate Binder.* The recommended starting dose of sevelamer hydrochloride tablets is 800 to 1600 mg, which can be administered as one or two 800 mg sevelamer hydrochloride tablets, with meals based on serum phosphorus level. Table 1 provides recommended starting doses of sevelamer hydrochloride tablets for patients not taking a phosphate binder.

**Table 1: Starting Dose for Dialysis Patients Not Taking a Phosphate Binder**

<b>Serum Phosphorus</b>	<b>Sevelamer Hydrochloride Tablets 800 mg</b>
>5.5 and <7.5 mg/dL	1 tablet three times daily with meals
≥7.5 and <9 mg/dL	2 tablets three times daily with meals
≥9 mg/dL	2 tablets three times daily with meals

*Patients Switching from Calcium Acetate.* In a study in 84 CKD patients on hemodialysis, a similar reduction in serum phosphorus was seen with equivalent doses (approximately mg for mg) of sevelamer hydrochloride tablets and calcium acetate. Table 2 gives recommended starting doses of sevelamer hydrochloride tablets based on a patient's current calcium acetate dose.

**Table 2: Starting Dose for Dialysis Patients Switching From Calcium Acetate to Sevelamer Hydrochloride Tablets**

<b>Calcium Acetate 667 mg (Tablets per meal)</b>	<b>Sevelamer Hydrochloride Tablets 800 mg (Tablets per meal)</b>
1 tablet	1 tablet
2 tablets	2 tablets
3 tablets	3 tablets

*Dose Titration for All Patients Taking Sevelamer Hydrochloride Tablets.* Adjust dosage based on the serum phosphorus concentration with a goal of lowering serum phosphorus to 5.5 mg/dL or less. Increase or decrease by one tablet per meal at two-week intervals as necessary. Table 3 gives a dose titration guideline. The average dose in a Phase 3 trial designed to lower serum phosphorus to 5 mg/dL or less was approximately three sevelamer hydrochloride 800 mg tablets per meal. The maximum average daily sevelamer hydrochloride tablets dose studied was 13 g.

**Table 3: Dose Titration Guideline**

<b>Serum</b>	<b>Sevelamer Hydrochloride</b>
--------------	--------------------------------

<b>Phosphorus</b>	<b>Tablets Dose</b>
>5.5 mg/dL	Increase 1 tablet per meal at 2-week intervals
3.5 to 5.5 mg/dL	Maintain current dose
<3.5 mg/dL	Decrease 1 tablet per meal

### **3. DOSAGE FORMS AND STRENGTHS**

800 mg Tablets: off-white to pale yellow, modified capsule shaped, biconvex film-coated tablets, imprinted with 'G447' on one side and plain on the other side.

### **4. CONTRAINDICATIONS**

Sevelamer hydrochloride is contraindicated in patients with bowel obstruction.

Sevelamer hydrochloride tablets are contraindicated in patients with known hypersensitivity to sevelamer hydrochloride or to any of the excipients.

### **5. WARNINGS AND PRECAUTIONS**

#### **5.1 Gastrointestinal Adverse Events**

Patients with dysphagia, swallowing disorders, severe gastrointestinal (GI) motility disorders, including severe constipation, or major GI tract surgery were not included in the sevelamer hydrochloride clinical studies.

Dysphagia and esophageal tablet retention have been reported in association with use of sevelamer tablets, some requiring hospitalization and intervention. Consider using sevelamer suspension in patients with a history of swallowing disorders.

Cases of bowel obstruction, bleeding gastrointestinal ulcers, colitis, ulceration, necrosis, and perforation have also been reported with sevelamer use [see *Adverse Reactions* (6.2)]. Inflammatory disorders may resolve upon sevelamer hydrochloride discontinuation. Treatment with sevelamer hydrochloride should be re-evaluated in patients who develop severe gastrointestinal symptoms.

#### **5.2 Monitor Serum Chemistries**

Bicarbonate and chloride levels should be monitored.

#### **5.3 Monitor for Reduced Vitamins D, E, K (clotting factors) and Folic Acid Levels**

In preclinical studies in rats and dogs, sevelamer hydrochloride reduced vitamins D, E, and K (coagulation parameters) and folic acid levels at doses of 6 to 10 times the recommended human dose. In short-term clinical trials, there was no evidence of reduction in serum levels of vitamins. However, in a one-year clinical trial, 25-hydroxyvitamin D (normal range 10 to 55 ng/mL) fell from  $39 \pm 22$  ng/mL to  $34 \pm 22$  ng/mL ( $p < 0.01$ ) with sevelamer hydrochloride treatment. Most (approximately 75%) patients in sevelamer hydrochloride clinical trials received vitamin supplements, which is typical of patients on dialysis.

## **6. ADVERSE REACTIONS**

### **6.1 Clinical Trials Experience**

Because clinical trials are conducted under widely varying conditions, adverse reaction rates observed in the clinical trials of a drug cannot be directly compared to rates in the clinical trials of another drug and may not reflect the rates observed in practice.

In a parallel design study of sevelamer hydrochloride with treatment duration of 52 weeks, adverse reactions reported for sevelamer hydrochloride (n=99) were similar to those reported for the active-control group (n=101). Overall adverse reactions among those treated with sevelamer hydrochloride occurring in >5% of patients included: vomiting (22%), nausea (20%), diarrhea (19%), dyspepsia (16%), abdominal pain (9%), flatulence (8%), and constipation (8%). A total of 27 patients treated with sevelamer and 10 patients treated with comparator withdrew from the study due to adverse reactions.

Based on studies of 8 to 52 weeks, the most common reason for withdrawal from sevelamer hydrochloride was gastrointestinal adverse reactions (3% to 16%).

In 143 peritoneal dialysis patients studied for 12 weeks, most adverse reactions were similar to adverse reactions observed in hemodialysis patients. The most frequently occurring treatment-emergent serious adverse reaction was peritonitis (8 reactions in 8 patients [8%] in the sevelamer group and 2 reactions in 2 patients [4%] on active-control). Thirteen patients (14%) in the sevelamer group and 9 patients (20%) in the active-control group discontinued, mostly for gastrointestinal adverse reactions. Patients on peritoneal dialysis should be closely monitored to ensure the reliable use of appropriate aseptic technique with the prompt recognition and management of any signs and symptoms associated with peritonitis.

### **6.2 Postmarketing Experience**

The following adverse reactions have been identified during postapproval use of sevelamer hydrochloride: hypersensitivity, pruritus, rash, abdominal pain, bleeding gastrointestinal ulcers, colitis, ulceration, necrosis, fecal impaction and uncommon cases of ileus, intestinal obstruction, and intestinal perforation. Appropriate medical management should be given to patients who develop constipation or have worsening of existing constipation to avoid severe complications.

Because these reactions are reported voluntarily from a population of uncertain size, it is not always possible to estimate their frequency or to establish a causal relationship to drug exposure.

## **7. DRUG INTERACTIONS**

There are no empirical data on avoiding drug interactions between sevelamer hydrochloride and most concomitant oral drugs. For oral medication where a reduction in the bioavailability of that medication would have a clinically significant effect on its safety or efficacy (e.g., cyclosporine, tacrolimus, levothyroxine), consider separation of the timing of the administration of the two drugs [see *Clinical Pharmacology* (12.3)]. The duration of separation depends upon the absorption characteristics of the medication concomitantly administered, such as the time to reach peak systemic levels and whether

the drug is an immediate-release or an extended-release product. Where possible monitor clinical responses or blood levels of concomitant drugs that have a narrow therapeutic range.

**Table 4: Sevelamer Drug Interactions**

<b>Oral drugs for which sevelamer did not alter the pharmacokinetics when administered concomitantly</b>	
Digoxin Enalapril Iron Metoprolol Warfarin	
<b>Oral drugs that have demonstrated interaction with sevelamer and are to be dosed separately from sevelamer hydrochloride</b>	
	<b>Dosing Recommendations</b>
Ciprofloxacin	Take at least 2 hours before or 6 hours after sevelamer
Mycophenolate mofetil	Take at least 2 hours before sevelamer

## 8. USE IN SPECIFIC POPULATIONS

### 8.1 Pregnancy

#### Risk Summary

Sevelamer hydrochloride is not absorbed systemically following oral administration and maternal use is not expected to result in fetal exposure to the drug.

#### Clinical Considerations

Sevelamer hydrochloride may decrease serum levels of fat soluble vitamins and folic acid in pregnant women [see *Clinical Pharmacology (12.2)*]. Consider supplementing with these vitamins.

#### Data

##### Animal data

In pregnant rats given dietary doses of 0.5, 1.5, or 4.5 g/kg/day of sevelamer hydrochloride during organogenesis, reduced or irregular ossification of fetal bones, probably due to a reduced absorption of fat-soluble vitamin D, occurred at 7-21 times the maximum human equivalent dose of 13 g based on 60 kg body weight. In pregnant rabbits given oral doses of 100, 500, or 1000 mg/kg/day of sevelamer hydrochloride by gavage during organogenesis, an increase of early resorptions occurred in the high-dose group (human equivalent dose approximately 5 times the maximum clinical trial dose based on 60 kg body weight).

### 8.2 Lactation

#### Risk Summary

Sevelamer hydrochloride is not absorbed systemically by the mother following oral

administration and breastfeeding is not expected to result in exposure of the child to sevelamer hydrochloride.

### Clinical Considerations

Sevelamer hydrochloride may decrease serum levels of fat soluble vitamins and folic acid in lactating women [see *Clinical Pharmacology (12.2)*]. Consider supplementing with these vitamins.

### **8.4 Pediatric Use**

The safety and efficacy of sevelamer hydrochloride has not been established in pediatric patients.

### **8.5 Geriatric Use**

Clinical studies of sevelamer hydrochloride did not include sufficient numbers of subjects aged 65 and over to determine whether they respond differently from younger subjects. Other reported clinical experience has not identified differences in responses between the elderly and younger patients. In general, dose selection for an elderly patient should be cautious, usually starting at the low end of the dosing range.

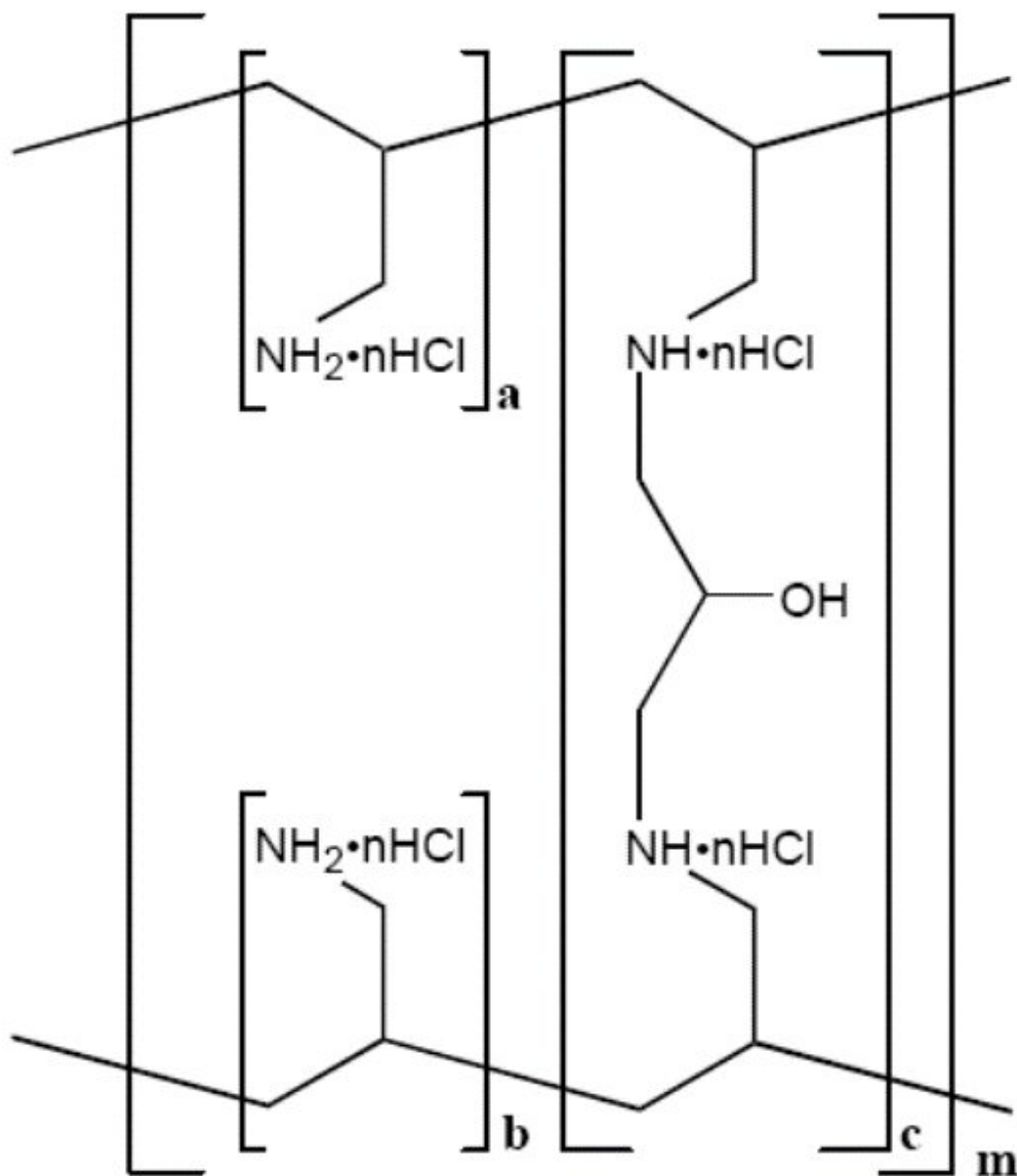
## **10. OVERDOSAGE**

Sevelamer hydrochloride has been given to normal healthy volunteers in doses of up to 14 g per day for eight days with no adverse effects. Sevelamer hydrochloride has been given in average doses up to 13 g per day to hemodialysis patients. There are no reports of overdosage with sevelamer hydrochloride in patients. Since sevelamer hydrochloride is not absorbed, the risk of systemic toxicity is low.

## **11. DESCRIPTION**

The active ingredient in Sevelamer Hydrochloride Tablets is sevelamer hydrochloride, a polymeric amine that binds phosphate and is meant for oral administration. Sevelamer hydrochloride is poly(allylamine hydrochloride) crosslinked with epichlorohydrin in which 40% of the amines are protonated. It is known chemically as poly(allylamine-co-N,N'-diallyl-1,3-diamino-2-hydroxypropane) hydrochloride. Sevelamer hydrochloride is hydrophilic, but insoluble in water. The structure is represented in Figure 1.

### **Figure 1: Chemical Structure of Sevelamer Hydrochloride**




---

a, b = number of primary amine groups	$a + b = 9$
c = number of crosslinking groups	$c = 1$
n = fraction of protonated amines	$n = 0.4$
m = large number to indicate extended polymer network	

---

The primary amine groups shown in the structure are derived directly from poly(allylamine hydrochloride). The crosslinking groups consist of two secondary amine groups derived from poly(allylamine hydrochloride) and one molecule of epichlorohydrin.

Sevelamer Hydrochloride Tablets: Each film-coated tablet of sevelamer hydrochloride contains 800 mg of sevelamer hydrochloride on an anhydrous basis. The inactive ingredients are colloidal silicon dioxide, diacetylated monoglycerides, hypromellose, lactose monohydrate, maize starch, mannitol, talc and zinc stearate. The imprinting ink



for sevelamer hydrochloride tablets has the following components: black iron oxide, butyl alcohol, isopropyl alcohol, propylene glycol, ammonium hydroxide and shellac.

## 12. CLINICAL PHARMACOLOGY

### 12.1 Mechanism of Action

Sevelamer hydrochloride tablets contain sevelamer hydrochloride, a non-absorbed binding crosslinked polymer. It contains multiple amines separated by one carbon from the polymer backbone. These amines exist in a protonated form in the intestine and interact with phosphate molecules through ionic and hydrogen bonding. By binding phosphate in the dietary tract and decreasing absorption, sevelamer hydrochloride lowers the phosphate concentration in the serum.

### 12.2 Pharmacodynamics

In addition to effects on serum phosphate levels, sevelamer hydrochloride has been shown to bind bile acids *in vitro* and *in vivo* in experimental animal models. Bile acid binding by ion exchange resins is a well-established method of lowering blood cholesterol. Because sevelamer binds bile acids, it may interfere with normal fat absorption and thus may reduce absorption of fat-soluble vitamins such as A, D, and K. In clinical trials of sevelamer hydrochloride, both the mean total and LDL cholesterol declined by 15% to 31%. This effect is observed after 2 weeks. Triglycerides, HDL cholesterol, and albumin did not change.

### 12.3 Pharmacokinetics

A mass balance study using  $^{14}\text{C}$ -sevelamer hydrochloride in 16 healthy male and female volunteers showed that sevelamer hydrochloride is not systemically absorbed. No absorption studies have been performed in patients with renal disease.

#### Drug Interactions

##### *In vivo*

Sevelamer carbonate has been studied in human drug-drug interaction studies (9.6 g once daily with a meal) with warfarin and digoxin. Sevelamer hydrochloride, which contains the same active moiety as sevelamer carbonate, has been studied in human drug-drug interaction studies (2.4 to 2.8 g single dose or three times daily with meals or two times daily without meals) with ciprofloxacin, digoxin, enalapril, iron, metoprolol, mycophenolate mofetil and warfarin.

Coadministered single dose of 2.8 g of sevelamer hydrochloride in fasted state decreased the bioavailability of ciprofloxacin by approximately 50% in healthy subjects.

Concomitant administration of sevelamer and mycophenolate mofetil in adult and pediatric patients decreased the mean MPA  $C_{\text{max}}$  and  $\text{AUC}_{0 \text{ to } 12\text{h}}$  by 36% and 26%, respectively.

Sevelamer carbonate or sevelamer hydrochloride did not alter the pharmacokinetics of a single dose of enalapril, digoxin, iron, metoprolol and warfarin when coadministered.

During postmarketing experience, cases of increased thyroid stimulating hormone (TSH) levels have been reported in patients coadministered sevelamer hydrochloride and

levothyroxine. Reduction in concentrations of cyclosporine and tacrolimus leading to dose increases has also been reported in transplant patients when coadministered with sevelamer hydrochloride without any clinical consequences (e.g., graft rejection). The possibility of an interaction cannot be excluded with these drugs.

## **13. NONCLINICAL TOXICOLOGY**

### **13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility**

Standard lifetime carcinogenicity bioassays were conducted in mice and rats. Rats were given sevelamer hydrochloride by diet at 0.3, 1, or 3 g/kg/day. There was an increased incidence of urinary bladder transitional cell papilloma in male rats of the high-dose group (human equivalent dose twice the maximum clinical trial dose of 13 g). Mice received dietary administration of sevelamer hydrochloride at doses of up to 9 g/kg/day (human equivalent dose 3 times the maximum clinical trial dose). There was no increased incidence of tumors observed in mice.

In an *in vitro* mammalian cytogenetic test with metabolic activation, sevelamer hydrochloride caused a statistically significant increase in the number of structural chromosome aberrations. Sevelamer hydrochloride was not mutagenic in the Ames bacterial mutation assay.

Sevelamer hydrochloride did not impair the fertility of male or female rats in a dietary administration study in which the females were treated from 14 days prior to mating through gestation and the males were treated for 28 days prior to mating. The highest dose in this study was 4.5 g/kg/day (human equivalent dose 3 times the maximum clinical trial dose of 13 g).

## **14. CLINICAL STUDIES**

The ability of sevelamer hydrochloride to lower serum phosphorus in CKD patients on dialysis was demonstrated in six clinical trials: one double-blind placebo-controlled 2-week study (sevelamer hydrochloride N=24); two open-label uncontrolled 8-week studies (sevelamer hydrochloride N=220) and three active-controlled open-label studies with treatment durations of 8 to 52 weeks (sevelamer hydrochloride N=256). Three of the active-controlled studies are described here. One is a crossover study with two 8-week periods comparing sevelamer hydrochloride to an active control. The second is a 52-week parallel study comparing sevelamer hydrochloride with active control. The third is a 12-week parallel study comparing sevelamer hydrochloride and active-control in peritoneal dialysis patients.

### **14.1 Active-Control, Cross-Over Study in Hemodialysis Patients**

Eighty-four CKD patients on hemodialysis who were hyperphosphatemic (serum phosphorus >6 mg/dL) following a two-week phosphate-binder washout period received sevelamer hydrochloride and active-control for eight weeks each in random order. Treatment periods were separated by a two-week phosphate-binder washout period. Patients started on treatment three times per day with meals. Over each eight-week treatment period, at three separate time points the dose of sevelamer hydrochloride could be titrated up 1 capsule or tablet per meal (3 per day) to control serum phosphorus, the dose of active-control could also be altered to attain phosphate

control. Both treatments significantly decreased mean serum phosphorus by about 2 mg/dL (Table 5).

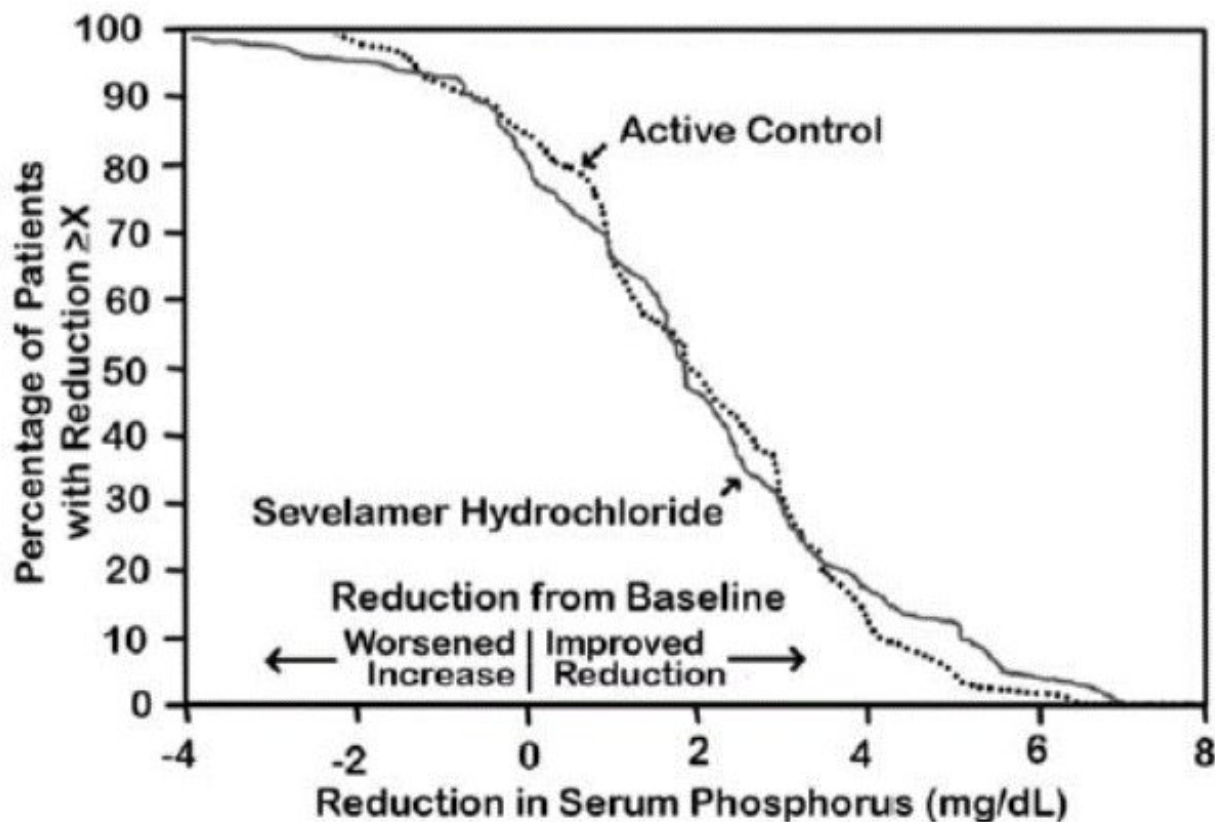
**Table 5: Mean Serum Phosphorus (mg/dL) at Baseline and Endpoint**

	<b>Sevelamer Hydrochloride Tablets (N=81)</b>	<b>Active-Control (N=83)</b>
Baseline at End of Washout	8.4	8
Endpoint	6.4	5.9
Change from Baseline at Endpoint (95% Confidence Interval)	-2* (-2.5, -1.5)	-2.1* (-2.6, -1.7)

\*p<0.0001, within treatment group comparison

The distribution of responses is shown in Figure 2. The distributions are similar for sevelamer hydrochloride and active control. The median response is a reduction of about 2 mg/dL in both groups. About 50% of subjects have reductions between 1 and 3 mg/dL.

**Figure 2: Percentage of Patients (Y-axis) Attaining a Phosphorus Reduction from baseline (mg/dL) at Least as Great as the Value of the X-axis**



Average daily sevelamer hydrochloride dose at the end of treatment was 4.9 g (range of

0 to 12.6 g).

## 14.2 Active-Control, Parallel Study in Hemodialysis Patients

Two hundred CKD patients on hemodialysis who were hyperphosphatemic (serum phosphorus >5.5 mg/dL) following a two-week phosphate-binder washout period were randomized to receive sevelamer hydrochloride 800 mg tablets (N=99) or an active-control (N=101). The two treatments produced similar decreases in serum phosphorus. At week 52, using last observation carried forward, sevelamer hydrochloride and active-control both significantly decreased mean serum phosphorus (Table 6).

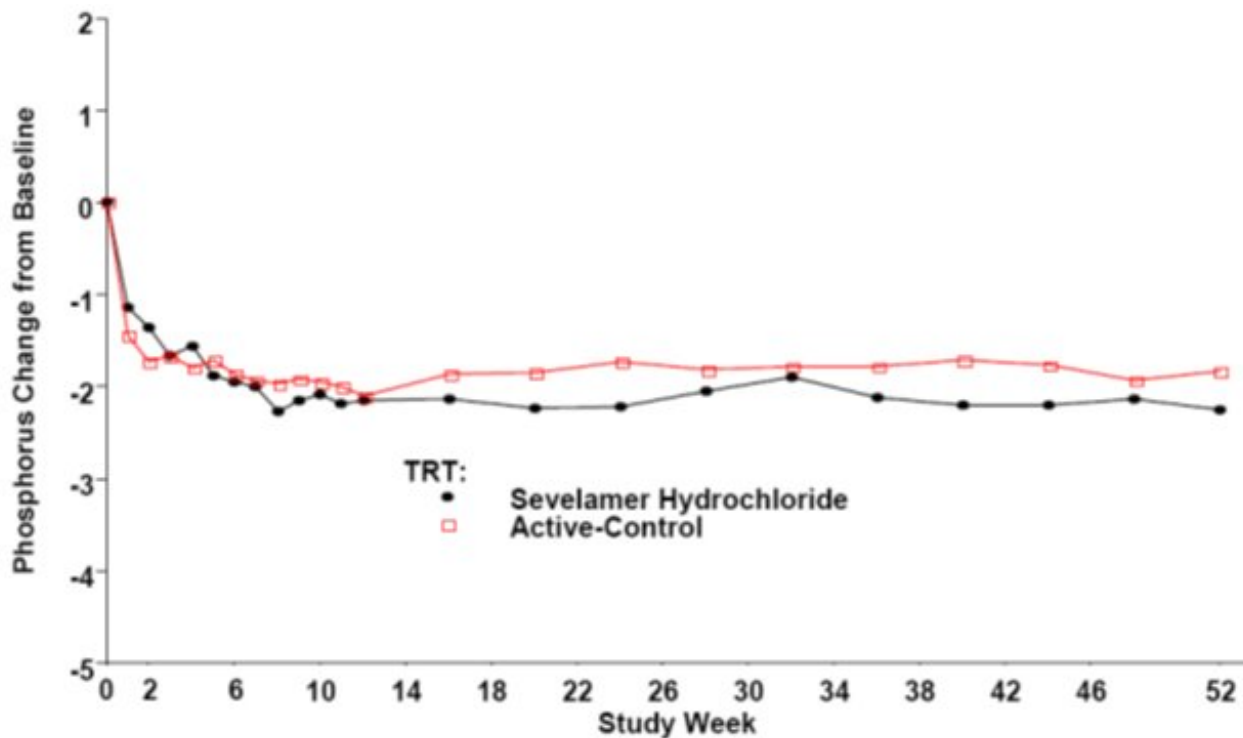
**Table 6: Mean Serum Phosphorus (mg/dL) and Ion Product at Baseline and Change from Baseline to End of Treatment**

	<b>Sevelamer Hydrochloride Tablets (N=94)</b>	<b>Active-Control (N=98)</b>
Phosphorus Baseline	7.5	7.3
Change from Baseline at Endpoint	-2.1	-1.8
Ca × Phosphorus Ion Product Baseline	70.5	68.4
Change from Baseline at Endpoint	-19.4	-14.2

Sixty-one percent of sevelamer hydrochloride patients and 73% of the control patients completed the full 52 weeks of treatment.

Figure 3, a plot of the phosphorus change from baseline for the completers, illustrates the durability of response for patients who are able to remain on treatment.

**Figure 3: Mean Phosphorus Change from Baseline for Patients who Completed 52 Weeks of Treatment**



Average daily sevelamer hydrochloride dose at the end of treatment was 6.5 g (range of 0.8 to 13 g).

### 14.3 Active-Control, Parallel Study in Peritoneal Dialysis Patients

One hundred and forty-three patients on peritoneal dialysis, who were hyperphosphatemic (serum phosphorus >5.5 mg/dL) following a two-week phosphate-binder washout period, were randomized to receive sevelamer hydrochloride (N=97) or active-control (N=46) open label for 12 weeks. Average daily sevelamer hydrochloride dose at the end of treatment was 5.9 g (range 0.8 to 14.3 g). There were statistically significant changes in serum phosphorus ( $p < 0.001$ ) for sevelamer hydrochloride (-1.6 mg/dL from baseline of 7.5 mg/dL), similar to the active-control.

## 16. HOW SUPPLIED/STORAGE AND HANDLING

Sevelamer Hydrochloride Tablets, 800 mg are supplied as off-white to pale yellow, modified capsule shaped, biconvex film-coated tablets, imprinted with 'G447' on one side and plain on the other side and are supplied as follows:

Bottles of 180 tablets with child-resistant closures: NDC 72603-148-01

**Storage: Store at 20°C to 25°C (68°F to 77°F); excursions permitted to 15°C to 30°C (59°F to 86°F) [see USP Controlled Room Temperature].**

Do not use sevelamer hydrochloride tablets after the expiration date on the bottle.

Dispense in a tight container.

Protect from moisture and store in a dry place. Keep tablets in original/pharmacy container.

## 17 PATIENT COUNSELING INFORMATION

Advise patients to take sevelamer hydrochloride tablets with meals and adhere to their prescribed diets.

Provide instructions on concomitant medications that should be dosed apart from sevelamer hydrochloride tablets.

Advise patients to report new onset or worsening of existing constipation or bloody stools promptly to their healthcare provider [see *Warnings and Precautions (5.1)*].

Manufactured for:

### Northstar Rx LLC

Memphis, TN 38141.

Manufactured by:

### Glenmark Pharmaceuticals Limited

Pithampur, Madhya Pradesh 454775, India

May 2023

## Package/Label Display Panel

**NDC 72603-148-01**

**Sevelamer Hydrochloride Tablets**

**800 mg**

**Bottle Label**

<p><b>Rx Only</b></p> <p>NDC 72603-148-01</p> <p><b>Sevelamer Hydrochloride Tablets</b></p> <p><b>800 mg</b></p> <p>180 Tablets</p> <p><b>NORTHSTAR<sup>®</sup></b></p>	<p>Each film-coated tablet contains sevelamer hydrochloride 800 mg.</p> <p><b>Usual Dosage:</b> See package insert for dosage information.</p> <p><b>Store at 20°C to 25°C (68°F to 77°F); excursions permitted to 15°C to 30°C (59°F to 86°F) [see USP Controlled Room Temperature].</b></p> <p>Dispense in a tight container.</p> <p>Protect from moisture and store in a dry place.</p> <p>Keep tablets in original/ pharmacy container.</p> <p>Manufactured for: Northstar Rx LLC Memphis, TN 38141.</p> <p>Manufactured by: Glenmark Pharmaceuticals Limited Pithampur, Madhya Pradesh 454775, India MP/DRUGS/25/9/2010 05/23</p> <p> 3 72603 14801 5</p> <p>© 2005 Northstar Healthcare Holdings Ltd.</p>	<p>PE641750523-1</p>
---	---	----------------------

# SEVELAMER HYDROCHLORIDE

sevelamer hydrochloride tablet, film coated

## Product Information

<b>Product Type</b>	HUMAN PRESCRIPTION DRUG	<b>Item Code (Source)</b>	NDC:72603-148
<b>Route of Administration</b>	ORAL		

## Active Ingredient/Active Moiety

Ingredient Name	Basis of Strength	Strength
<b>SEVELAMER HYDROCHLORIDE</b> (UNII: GLS2PGI8QG) (SEVELAMER - UNII:941N5DUU5C)	SEVELAMER HYDROCHLORIDE	800 mg

## Inactive Ingredients

Ingredient Name	Strength
<b>SILICON DIOXIDE</b> (UNII: ETJ7Z6XBU4)	
<b>TALC</b> (UNII: 7SEV7J4R1U)	
<b>ZINC STEARATE</b> (UNII: H92E6QA4FV)	
<b>DIACETYLATED MONOGLYCERIDES</b> (UNII: 5Z17386USF)	
<b>FERROSFERRIC OXIDE</b> (UNII: XM0M87F357)	
<b>HYPROMELLOSE, UNSPECIFIED</b> (UNII: 3NXW29V3WO)	
<b>MANNITOL</b> (UNII: 3OWL53L36A)	
<b>LACTOSE MONOHYDRATE</b> (UNII: EWQ57Q8I5X)	
<b>HYPROMELLOSE 2910 (50 MPA.S)</b> (UNII: 1IVH67816N)	
<b>BUTYL ALCOHOL</b> (UNII: 8PJ61P6TS3)	
<b>ISOPROPYL ALCOHOL</b> (UNII: ND2M416302)	
<b>PROPYLENE GLYCOL</b> (UNII: 6DC9Q167V3)	
<b>AMMONIA</b> (UNII: 5138Q19F1X)	
<b>STARCH, CORN</b> (UNII: O8232NY3SJ)	
<b>SHELLAC</b> (UNII: 46N107B71O)	

## Product Characteristics

<b>Color</b>	WHITE (off-white to pale yellow)	<b>Score</b>	no score
<b>Shape</b>	OVAL	<b>Size</b>	19mm
<b>Flavor</b>		<b>Imprint Code</b>	G447
<b>Contains</b>			

## Packaging

#	Item Code	Package Description	Marketing Start Date	Marketing End Date
1	NDC:72603-148-01	180 in 1 BOTTLE; Type 0: Not a Combination Product	05/23/2023	

## Marketing Information

Marketing Category	Application Number or Monograph Citation	Marketing Start Date	Marketing End Date
ANDA	ANDA204724	05/23/2023	

**Labeler** - NorthStar RxLLC (830546433)

## Establishment

Name	Address	ID/FEI	Business Operations
Glenmark Pharmaceuticals Limited		862603186	ANALYSIS(72603-148) , MANUFACTURE(72603-148)

Revised: 5/2023

NorthStar RxLLC